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ORACLE INTERNATIONAL CORPORATION
c/o VISTA IP LAW GROUP LLP
1885 LUNDY AVENUE
SUITE 108
San Jose, CA 95131

EXAMINER

MORRISON, JAY A

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2168

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Remarks

1. Claims 1-43 are pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

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under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frasier et al. ('Frasier' hereinafter) ("BURG - Fast Optimal Instruction Selection and Tree Parsing", by Fraser et al., ACM SIGPLAN Notices, Volume 27, No. 4, April 1992) in view of Kiselyov ("Better XML Parser through Functional Programming", by Kiselyov, Lecture Notes In Computer Science, Vol. 2257 archive, Proceedings of the 4th International Symposium on Practical Aspects of Declarative Languages, Pages: 209 - 224, Year of Publication: 2002, ISBN:3-540-43092-X.) and further in view of Chakraborty et al. ('Chakraborty' hereinafter) (Publication Number 2002/0188613).

As per claim 1, Frasier teaches

A computer-implemented method for processing a program statement in a database query language, the program statement corresponding to a plurality of operators, wherein an operator tree is associated with the plurality of operators, the operator tree comprising a parent operator node, the method comprising: (see overview)

identifying a child node that is associated with the parent operator node; (subject tree is operator tree, section 2, fifth paragraph; subject tree has nodes which by definition have parent/child relationship, section 3, first paragraph)

determining if the child node relates to an operator for which top-down processing is capable of being performed, wherein the top-down processing is capable of being performed when a result for the operator for the parent operator node; (recursive visit of subtrees where subject nodes may be skipped, section 3, first paragraph; note that the skipping of the subtree means that top-down processing cannot be performed)

calling and executing the operator for the child node to generate a result using a processor. (reduce function that traverses trees and prints recursively, section 3, page 72)

Frasier does not explicitly indicate “is capable of being generated without storage of the result” nor “outputting the result to a data stream without buffering the result or an intermediate result in storage when top-down processing is performed”.

However, Kiselyov discloses “is capable of being generated without storage of the result” (accumulates no data, section 4.2, fifth paragraph) and “outputting the result to a data stream without buffering the result or an intermediate result in storage when top-down processing is performed” (prints names as identified and accumulates no data, section 4.2, fifth paragraph and figure 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Frasier and Kiselyov because using the steps of “is

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capable of being generated without storage of the result" and "without buffering the result or an intermediate result in storage when top-down processing is performed" would have given those skilled in the art the tools to improve the invention by allowing the implementation of an efficient, compliant, stream-oriented XML parser. This gives the user the advantage of better use of existing resources.

Neither Frasier and Kiselyov explicitly indicate "outputting the result to a data stream".

However, Chakraborty discloses "outputting the result to a data stream" (output to stream, paragraph [0055], lines 6-9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Frasier, Kiselyov and Chakraborty because using the steps of "outputting the result to a data stream" would have given those skilled in the art the tools to improve the invention by allowing the merging of DOM trees without using expensive prior methods. This gives the user the advantage of more efficient use of computer resources.

As per claim 2,

Neither Frasier and Kiselyov explicitly indicate "determining whether the data stream already exists; and creating the data stream if it does not exist".

However, Chakraborty discloses "determining whether the data stream already exists; and creating the data stream if it does not exist" (paragraph [0055], lines 6-9).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Frasier, Kiselyov and Chakraborty because using the steps of “determining whether the data stream already exists; and creating the data stream if it does not exist” would have given those skilled in the art the tools to improve the invention by allowing the merging of DOM trees without using expensive prior methods. This gives the user the advantage of more efficient use of computer resources.

As per claim 3,

Frasier does not explicitly indicate “the program statement is intended to create XML, wherein one or more XML tags are generated”.

However, Kiselyov discloses “the program statement is intended to create XML, wherein one or more XML tags are generated” (section 4.2, second paragraph).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Frasier and Kiselyov because using the steps of “the program statement is intended to create XML, wherein one or more XML tags are generated” would have given those skilled in the art the tools to improve the invention by allowing the implementation of an efficient, compliant, stream-oriented XML parser. This gives the user the advantage of better use of existing resources.

As per claim 4,

Frasier does not explicitly indicate “the program statement comprises a SQL/XML operator”.

However, Kiselyov discloses “the program statement comprises a SQL/XML operator” (section 4.1, second paragraph).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Frasier and Kiselyov because using the steps of “the program statement comprises a SQL/XML operator” would have given those skilled in the art the tools to improve the invention by allowing the implementation of an efficient, compliant, stream-oriented XML parser. This gives the user the advantage of better use of existing resources.

As per claim 5,

Frasier does not explicitly indicate “the SQL/XML operator is a XMLElement0, XMLAgg0, XMLConcat0, XMLForest0, XMLAttribute0, XMLComment0, or XMLPI0 operator”.

However, Kiselyov discloses “the SQL/XML operator is a XMLElement0, XMLAgg0, XMLConcat0, XMLForest0, XMLAttribute0, XMLComment0, or XMLPI0 operator” (section 3, first paragraph).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Frasier and Kiselyov because using the steps of “the SQL/XML operator is a XMLElement0, XMLAgg0, XMLConcat0, XMLForest0, XMLAttribute0, XMLComment0, or XMLPI0 operator” would have given those skilled in

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the art the tools to improve the invention by allowing the implementation of an efficient, compliant, stream-oriented XML parser. This gives the user the advantage of better use of existing resources.

As per claim 6,

Frasier does not explicitly indicate “nodes corresponding to a concatenate operation or a CASE WHEN statement on top of SQL/XML operator are eligible for top-down processing”.

However, Kiselyov discloses “nodes corresponding to a concatenate operation or a CASE WHEN statement on top of SQL/XML operator are eligible for top-down processing” (section 3, third paragraph).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Frasier and Kiselyov because using the steps of “nodes corresponding to a concatenate operation or a CASE WHEN statement on top of SQL/XML operator are eligible for top-down processing” would have given those skilled in the art the tools to improve the invention by allowing the implementation of an efficient, compliant, stream-oriented XML parser. This gives the user the advantage of better use of existing resources.

As per claim 7,

Neither Frasier and Kiselyov explicitly indicate “the data stream is closed after the parent operator node has been fully evaluated”.

However, Chakraborty discloses “the data stream is closed after the parent operator node has been fully evaluated” (paragraph [0023]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Frasier, Kiselyov and Chakraborty because using the steps of “the data stream is closed after the parent operator node has been fully evaluated” would have given those skilled in the art the tools to improve the invention by allowing the merging of DOM trees without using expensive prior methods. This gives the user the advantage of more efficient use of computer resources.

As per claim 8, Frasier teaches
identifying another child operator node, wherein the another child operator node is not eligible for top-down processing. (section 3, first paragraph)

As per claim 9, Frasier teaches
the another child operator node is evaluated using bottom-up processing.
(section 3, second paragraph)

As per claim 10, Frasier teaches
both top-down and bottom-up processing are used to evaluate the program statement. (section 3, first paragraph)

As per claim 11,

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Neither Frasier and Kiselyov explicitly indicate “the data stream is built at an intended target location”.

However, Chakraborty discloses “the data stream is built at an intended target location” (paragraph [0023]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Frasier, Kiselyov and Chakraborty because using the steps of “the data stream is built at an intended target location” would have given those skilled in the art the tools to improve the invention by allowing the merging of DOM trees without using expensive prior methods. This gives the user the advantage of more efficient use of computer resources.

As per claim 12,

Neither Frasier and Kiselyov explicitly indicate “the data stream is a single data stream”.

However, Chakraborty discloses “the data stream is a single data stream” (paragraph [0055], lines 6-9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Frasier, Kiselyov and Chakraborty because using the steps of “the data stream is a single data stream” would have given those skilled in the art the tools to improve the invention by allowing the merging of DOM trees without using expensive prior methods. This gives the user the advantage of more efficient use of computer resources.

As per claim 13,

Neither Frasier and Kiselyov explicitly indicate “the data stream is built on a buffer, LOB, HTTP stream, segmented array, data socket, pipe, file, internet stream type, network stream type, or FTP stream”.

However, Chakraborty discloses “the data stream is built on a buffer, LOB, HTTP stream, segmented array, data socket, pipe, file, internet stream type, network stream type, or FTP stream” (paragraph [0019], lines 12-14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Frasier, Kiselyov and Chakraborty because using the steps of “the data stream is built on a buffer, LOB, HTTP stream, segmented array, data socket, pipe, file, internet stream type, network stream type, or FTP stream” would have given those skilled in the art the tools to improve the invention by allowing the merging of DOM trees without using expensive prior methods. This gives the user the advantage of more efficient use of computer resources.

As per claim 14,

Frasier does not explicitly indicate “an intermediate copy is not stored for the output result”.

However, Kiselyov discloses “an intermediate copy is not stored for the output result ” (accumulates no data, section 4.2, fifth paragraph).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Frasier and Kiselyov because using the steps of “an intermediate copy is not stored for the output result” would have given those skilled in the art the tools to improve the invention by allowing the implementation of an efficient, compliant, stream-oriented XML parser. This gives the user the advantage of better use of existing resources.

As per claim 15, Frasier teaches

A computer-implemented method for processing a program statement, the program statement corresponding to a plurality of operators, wherein an operator tree can is associated with the plurality of operators, the operator tree comprising a parent operator node, the method comprising: (see overview)

(a) determining whether the parent operator node is related to a first child operator node that is eligible for top-down processing (subject tree is operator tree, section 2, fifth paragraph; subject tree has nodes which by definition have parent/child relationship, section 3, first paragraph), wherein the first child operator node is eligible for the top-down processing when a result for an operator associated with the first child operator node for the parent operator node; (recursive visit of subtrees where subject nodes may be skipped, section 3, first paragraph; note that the skipping of the subtree means that top-down processing cannot be performed)

and (b) evaluating the first child operator node using a processor with top-down processing if the child operator is eligible for top-down processing, wherein the output

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from top-down processing the first child operator node. (reduce function that traverses trees and prints recursively, section 3, page 72)

Frasier does not explicitly indicate “without buffering the result or an intermediate result in storage” nor “is capable of being generated without storage of the result”.

However, Kiselyov discloses “without buffering the result or an intermediate result in storage ” (accumulates no data, section 4.2, fifth paragraph) and “is capable of being generated without storage of the result” (prints names as identified and accumulates no data, section 4.2, fifth paragraph and figure 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Frasier and Kiselyov because using the steps of “without buffering the result or an intermediate result in storage” nor “is capable of being generated without storage of the result” would have given those skilled in the art the tools to improve the invention by allowing the implementation of an efficient, compliant, stream-oriented XML parser. This gives the user the advantage of better use of existing resources.

Neither Frasier and Kiselyov explicitly indicate “is output to a data stream”.

However, Chakraborty discloses “is output to a data stream” (output to stream, paragraph [0055], lines 6-9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Frasier, Kiselyov and Chakraborty because using the steps of “is output to a data stream” would have given those skilled in the art the tools to improve the invention by allowing the merging of DOM trees without using expensive

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prior methods. This gives the user the advantage of more efficient use of computer resources.

As per claims 16-19,

These claims are rejected on grounds corresponding to the arguments given above for rejected claims 3-6 and are similarly rejected.

As per claim 20,

Frasier does not explicitly indicate “an intermediate copy is not stored for the output from the first child operator node”.

However, Kiselyov discloses “an intermediate copy is not stored for the output from the first child operator node” (accumulates no data, section 4.2, fifth paragraph).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Frasier and Kiselyov because using the steps of “an intermediate copy is not stored for the output from the first child operator node” would have given those skilled in the art the tools to improve the invention by allowing the implementation of an efficient, compliant, stream-oriented XML parser. This gives the user the advantage of better use of existing resources.

As per claims 21-25,

These claims are rejected on grounds corresponding to the arguments given above for rejected claims 8-13 and are similarly rejected.

As per claims 26 and 30-32,

These claims are rejected on grounds corresponding to the arguments given above for rejected claims 1 and 3-5, respectively, and are similarly rejected.

As per claims 27 and 33-35,

These claims are rejected on grounds corresponding to the arguments given above for rejected claims 1 and 3-5 and are similarly rejected.

As per claims 28 and 36-38,

These claims are rejected on grounds corresponding to the arguments given above for rejected claims 15-18 and are similarly rejected.

As per claims 29 and 39-41,

These claims are rejected on grounds corresponding to the arguments given above for rejected claims 15-18 and are similarly rejected.

As per claim 42,

regarding the child node. (section 3, first paragraph)

Neither Frasier and Kiselyov explicitly indicate “a volatile or non-volatile medium for storing information”.

However, Chakraborty discloses “a volatile or non-volatile medium for storing information” (paragraph [0092], lines 1-3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Frasier, Kiselyov and Chakraborty because using the steps of “a volatile or non-volatile medium for storing information” would have given those skilled in the art the tools to improve the invention by allowing the merging of DOM trees without using expensive prior methods. This gives the user the advantage of more efficient use of computer resources.

As per claim 42,

This claim is rejected on grounds corresponding to the arguments given above for rejected claim 43 and is similarly rejected.

Response to Arguments

4. Applicant's arguments, see page 11, filed 9/9/09, with respect to the 35 USC 101 rejections of claims 1-25 have been fully considered and are persuasive. The 35 USC 101 rejections of claims 1-25 have been withdrawn.

5. Applicant's remaining arguments filed 9/29/09 have been fully considered but they are not persuasive.

Applicant argues that Frasier does not disclose an operator tree associated with a plurality of operators that correspond with a program statement in a database query language. Respectfully, it is noted that Frasier discloses an operator tree (page 69, third full paragraph) and that the other argued limitations are contained in the preamble and therefore have no patentable weight. These trees could be processed regardless of the database language statements cited as intended use in the preamble and therefore the body of the claim can be interpreted much more broadly as written. These limitations regarding a program statement in a database query language statement have not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). In order to make the claim more clear in this regard it is suggested that the applicant move the database query language statement language into the body of the claim.

Applicant argues that Kiselyov does not disclose outputting the result for a child node to a data stream without buffering the result or an intermediate result in storage when top-down processing is performed. Respectfully, it is noted that Kiselyov discloses a recursive function processing an XML structure to a stream (figure 4). While the applicant argues that the cited reference does not teach that the data is not buffered

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because not accumulated does not mean that it is not stored, the cited reference states that names are printed as identified. Also, the argument that this is not related to child nodes, the recursive nature of the code listed means that the nodes have a hierarchical structure and therefore describe parent-child relationships. Therefore kiselyov discloses the limitation.

Applicant argues that Frasier does not disclose determining if the child node relates to an operator for which top-down processing is capable of being performed, wherein the top-down processing is capable of being performed when a result for the operator for the parent operator node. Respectfully, it is noted that Frasier discloses that certain internal nodes can be skipped based on patterns in the interior operators (section 3, paragraph 1), which means that there is some determination made regarding the processing of that node based on the operator and therefore top-down processing of that operator in the tree was not possible. Applicant argues that the method used does process the tree in a top-down fashion because it continues to process the grandchildren, however it is respectfully submitted that the language of the claim relates to an operator for which top-down processing is capable of being performed. Since the cited are uses the interior operator as a basis for determination whether to skip the subject nodes, a determination is made whether to do top-down processing on that operator. Therefore Frasier discloses the limitation.

With respect to the Applicants' arguments regarding claims 15, 28 and 29, the applicant is directed to the answers to arguments given above.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The prior art made of record, listed on form PTO-892, and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jay A. Morrison whose telephone number is (571) 272-7112. The examiner can normally be reached on M-F 8-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Vo can be reached on (571) 272-3642. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jay Morrison
TC2100

Tim Vo
TC2100

/Cheyne D Ly/

Primary Examiner, Art Unit 2168